



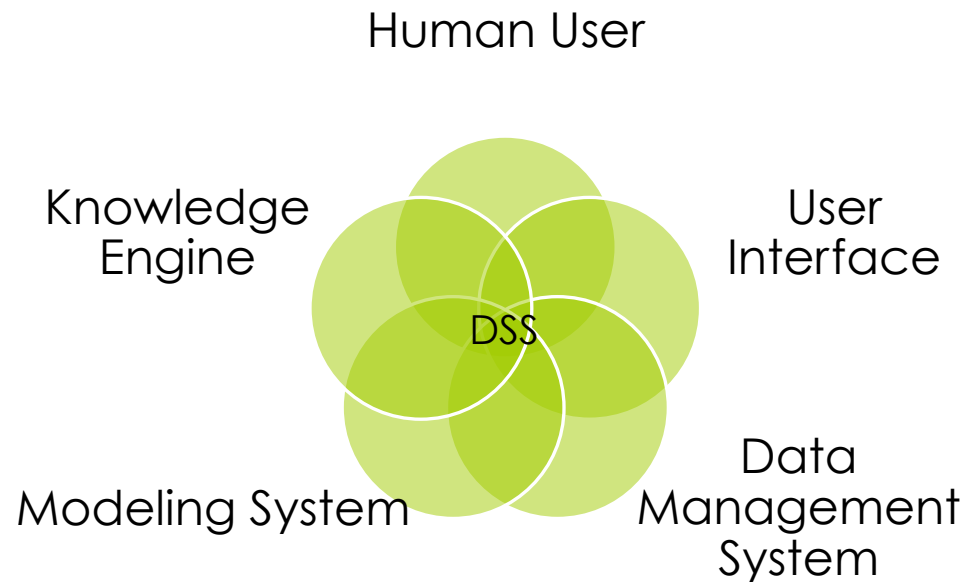
The Wildland Fire Assessment System (WFAS)

W. Matt Jolly and Larry
Bradshaw (Retired)
USFS, RMRS, Fire Sciences
Laboratory

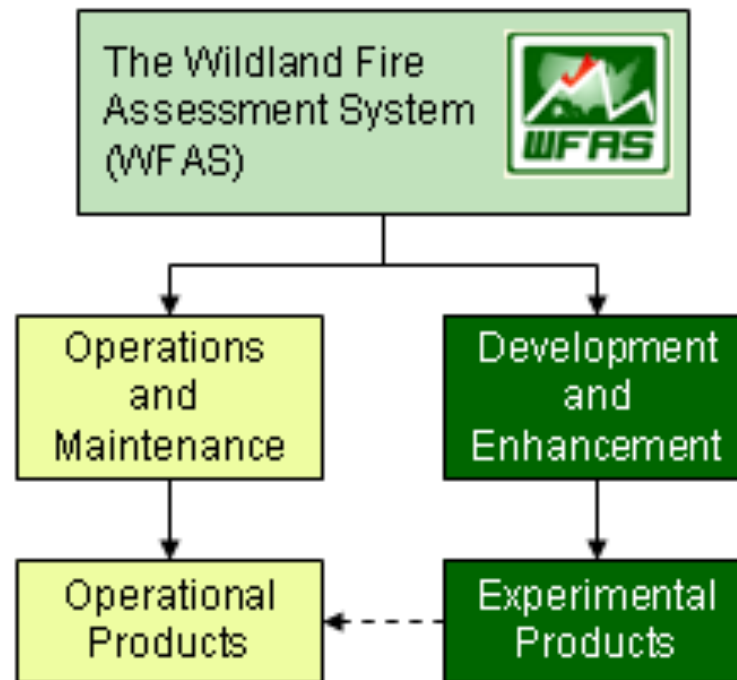
What is WFAS?

- A web-based data display system of fire danger information
- Founded by the Fire Lab in 1994 to provide easier access to EOS data
- Used by private, local, state, and federal agencies daily
- Two components:
 - Research and Development
 - Operations and Maintenance
- Chartered and supported by the US Forest Service, Fire and Aviation Management only for O&M

Five components of a decision support system

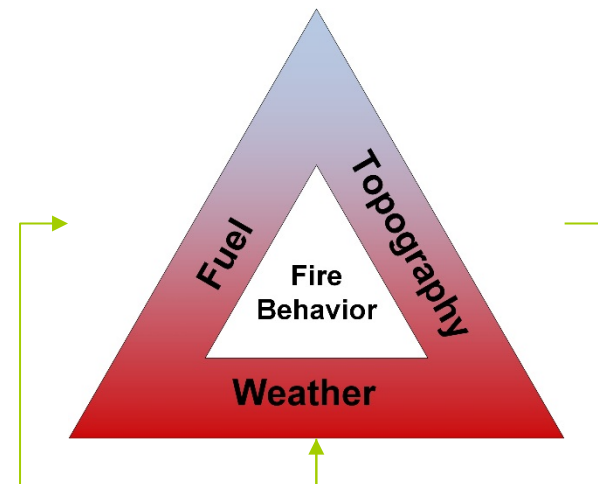


Two functions provide a direct pipeline to support management applications



What can EOS data provide?

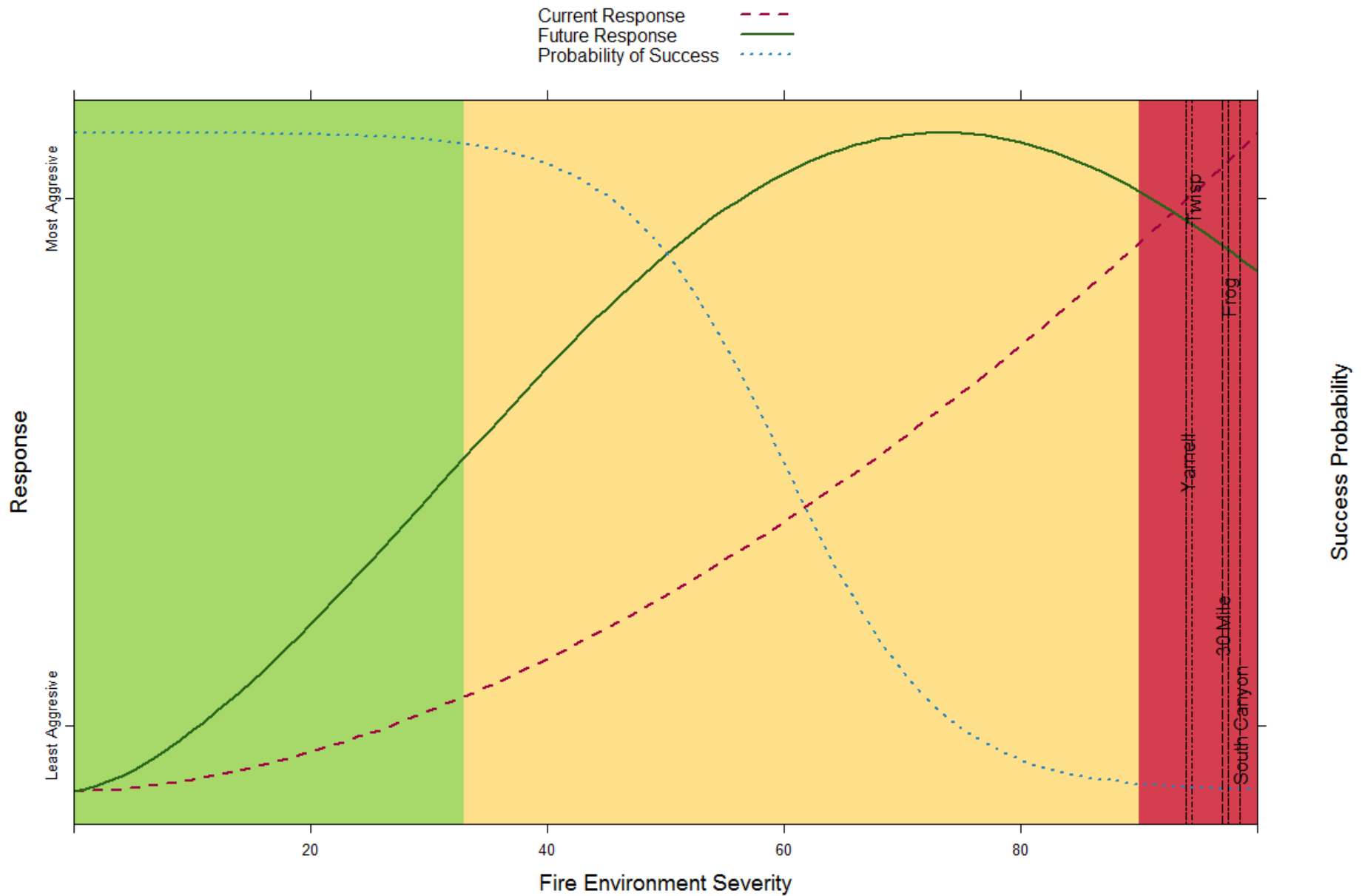
- Fuels
 - Seasonality
 - Magnitude (loading / biomass)
 - Vegetation Indices (NDVI / EVI)
 - Moisture content (live vegetation)
 - Condition (Insect Infestation)
 - Change detection
- Weather
 - Hybrid surface obs and land surface temp
- Topography
 - SRTM and other missions



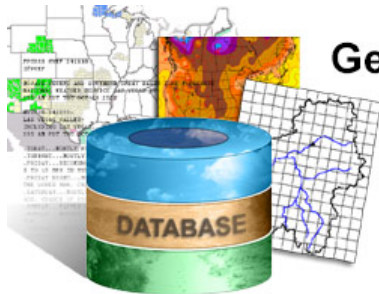
How is WFAS used?

- Internal (within-agency / interagency) and External (partners and public) communication
- Fire prevention
- Preparedness
- Suppression response decisions (manage / suppress / hybrid)
- Short and long-term assessments
- Situational Awareness



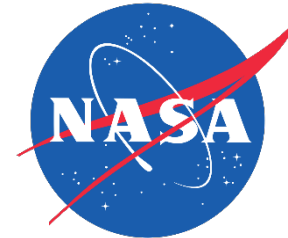
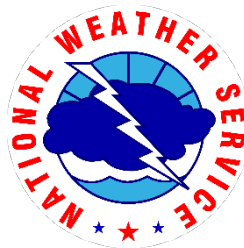


Partners and Data sources



General Information

NDFD
NWS National Digital
Forecast Database



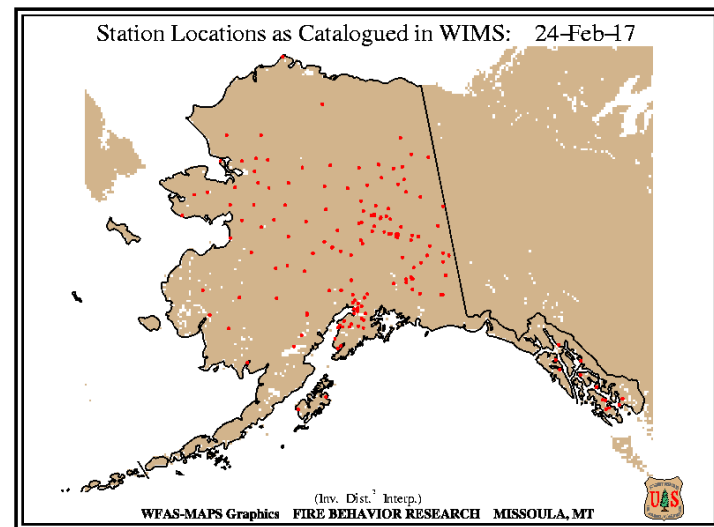
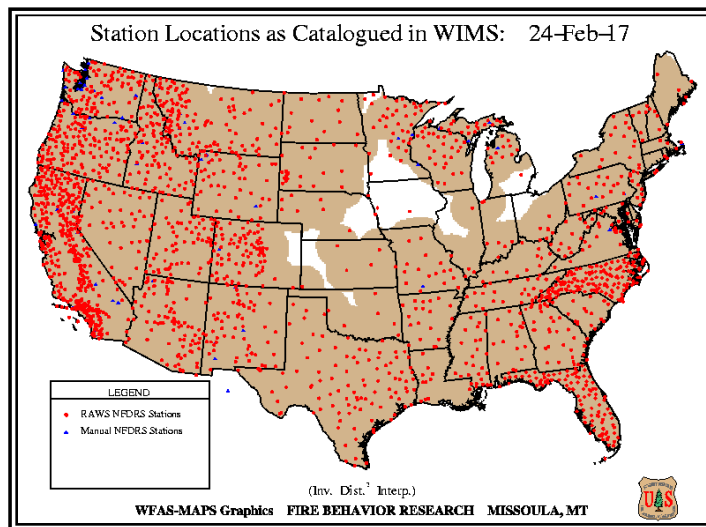
Plus the entire user community

Various components of products

Main Menu
Home
News
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Processing
Disclaimer
References
Quick Links
Search Archive
Fire Potential / Danger
Fire Danger Rating
Lightning Efficiency
Haines Index
NDFD Fire Danger Forecasts
Weather
Fire Weather Map Data
Google Earth Map Data
Moisture / Drought
Dead Fuel Moisture
AVHRR NDVI
Keetch-Byram Index
Palmer Index
National Fuel Moisture Database
Experimental Products
Potential Lightning Ignition
Dry Lightning
Growing Season Index
NFDPS Next Day Forecast
Live Fuel Moisture
WFAS Map Server
Western Region
Climate Center RAWS

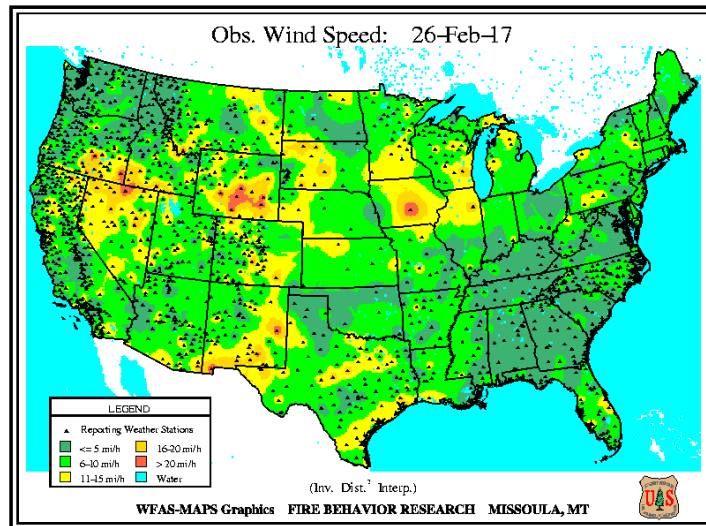
- Fire Danger
 - Operational from WIMS
 - Today / Tomorrow
 - Seven day forecasts
- Weather
- Moisture / Drought
- Experimental Products

Fire Weather Network

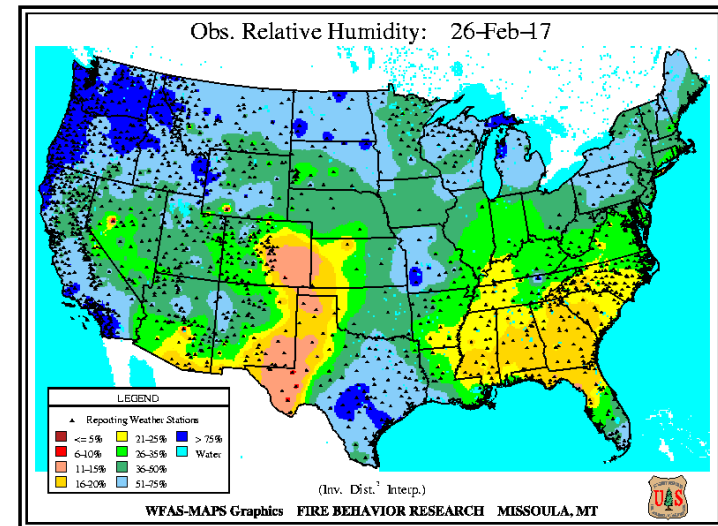


Example Fire Weather

Wind Speed

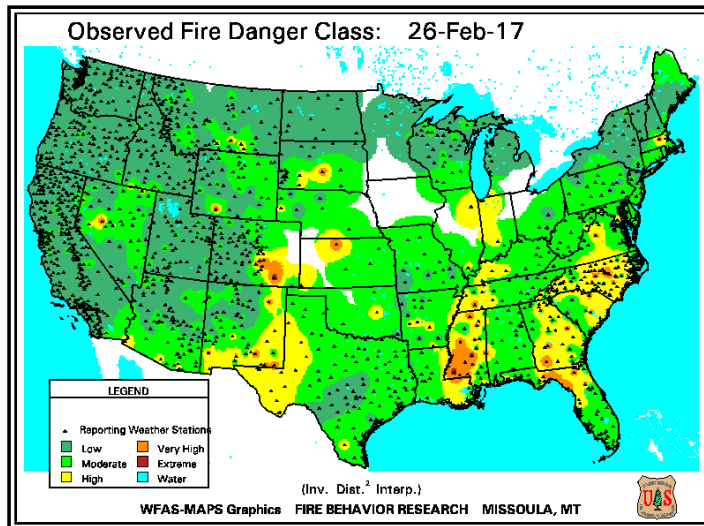


Relative Humidity

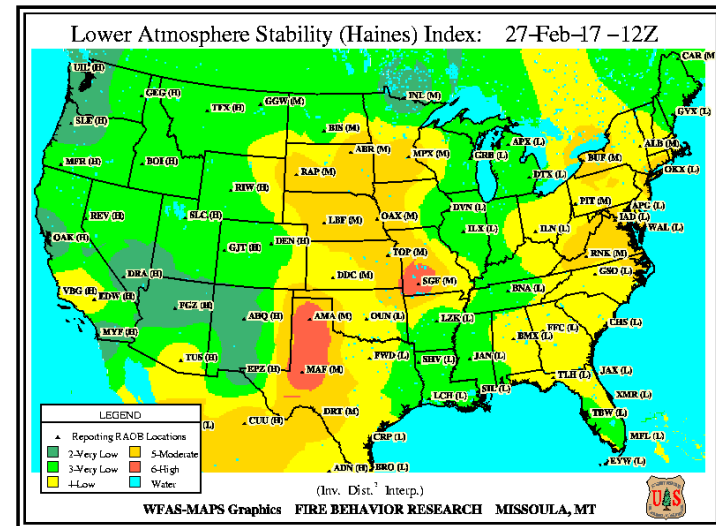


Fire Danger

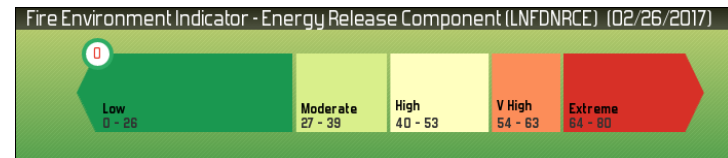
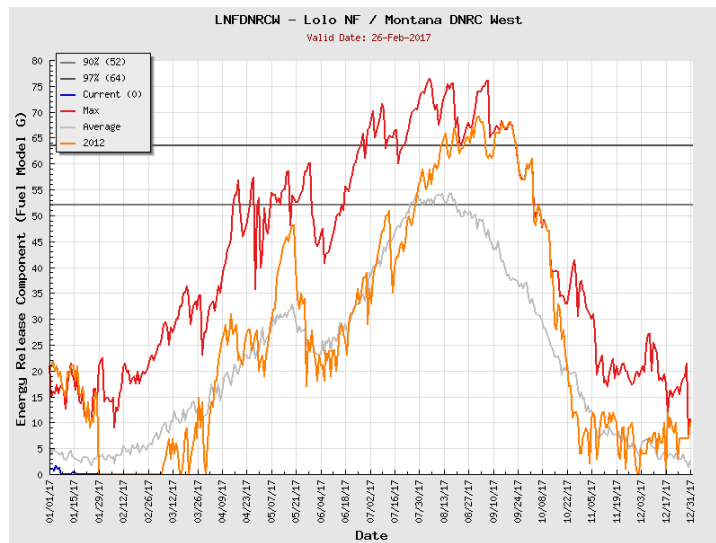
Surface adjective fire danger



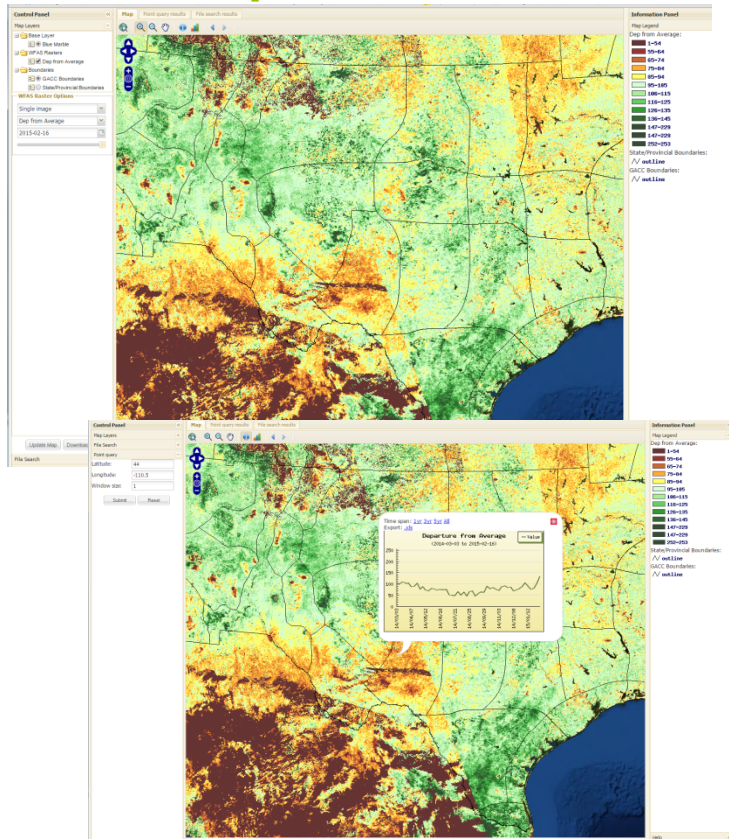
Atmospheric stability (Haines)



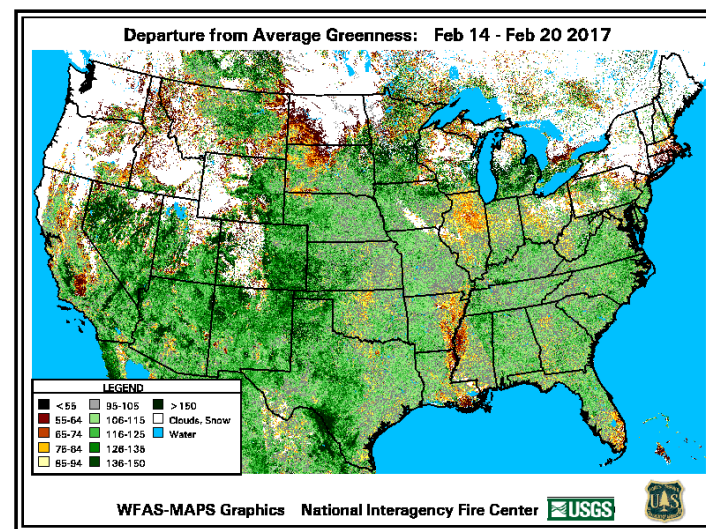
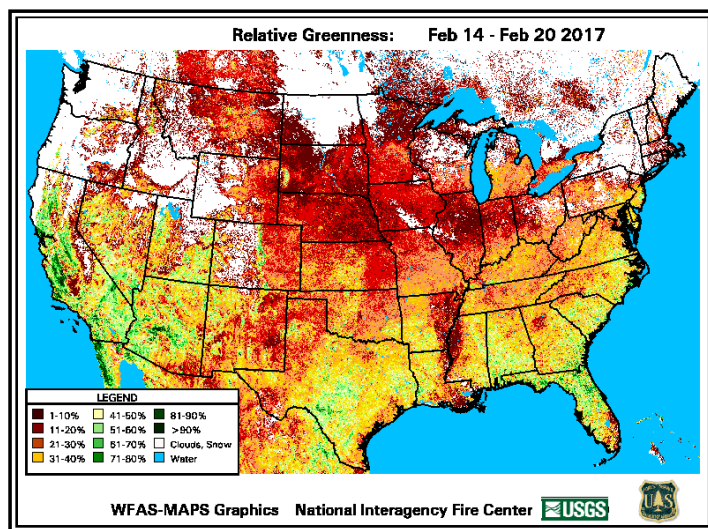
Other automated fire danger products



maps.wfas.net

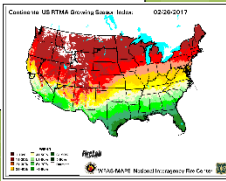


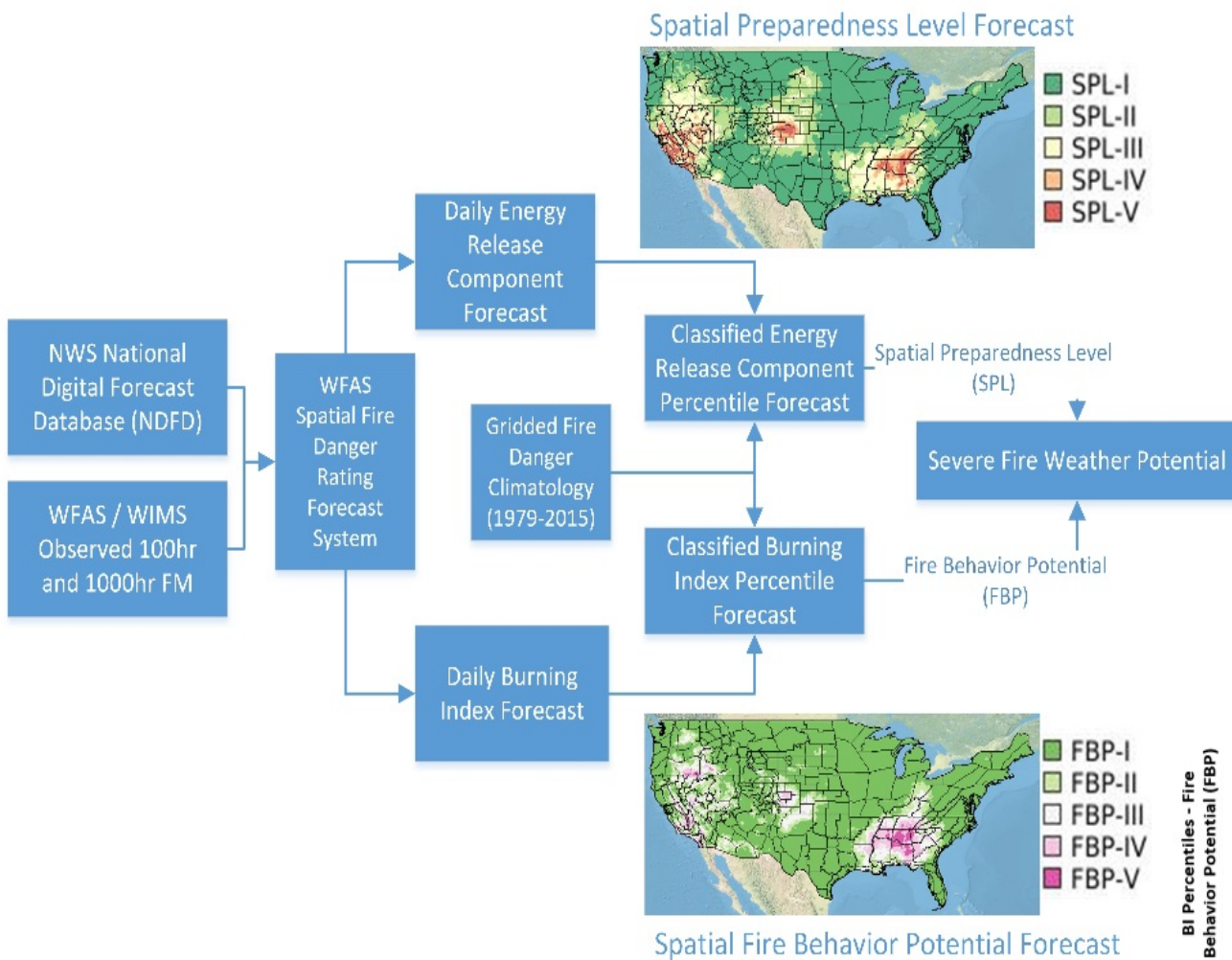
- Map server using open source mapping tools
 - PostGIS with time
 - MapServer
 - OpenLayers
 - Custom tools
 - Point queries, spatial summaries
 - Operational since 2008
- How do we provide spatial data to fire managers?



Research and Development (R&D)

- TOPOFIRE
- CHISLIC
- Fire Potential Index
- Growing Season Index
- Forecast tools
- Situational Assessment
- Next generation of the US National Fire Danger Rating System (NFDRS2016)
- “The goal of this component is to ensure that the **best available science and technology** is made available to managers in a form that is user-friendly and useful for decision making at multiple scales.”





ERC Percentiles - Spatial Preparedness Levels (SPL)

	<58%	78%	92%	97%	>97%
SPL Class	1	2	3	4	5
	I	II	III	IV	V

FBP Class

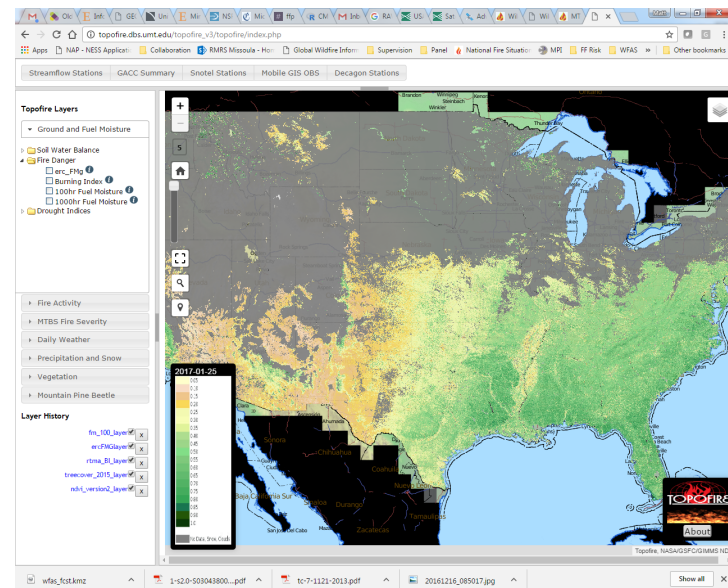
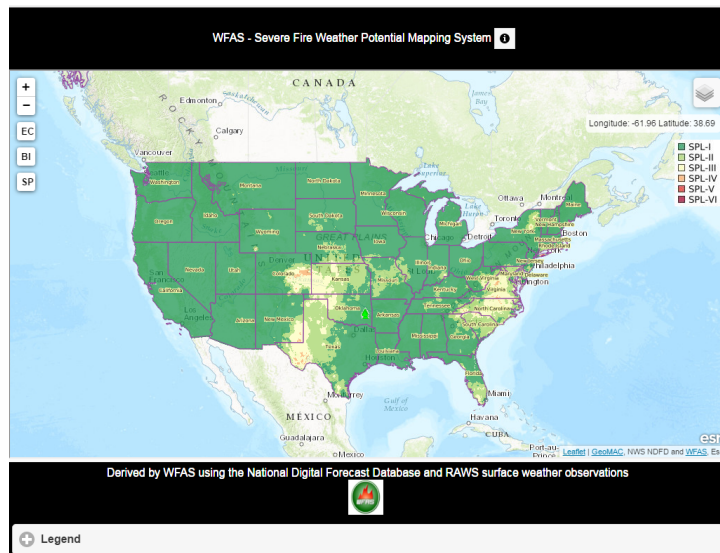
	<58%	78%	92%	97%	>97%
1	I	II	III	IV	V
2	II	III	IV	V	
3	III	IV	V		
4	IV	V			
5	V				

Severe Fire Weather Potential (SFWP) Class

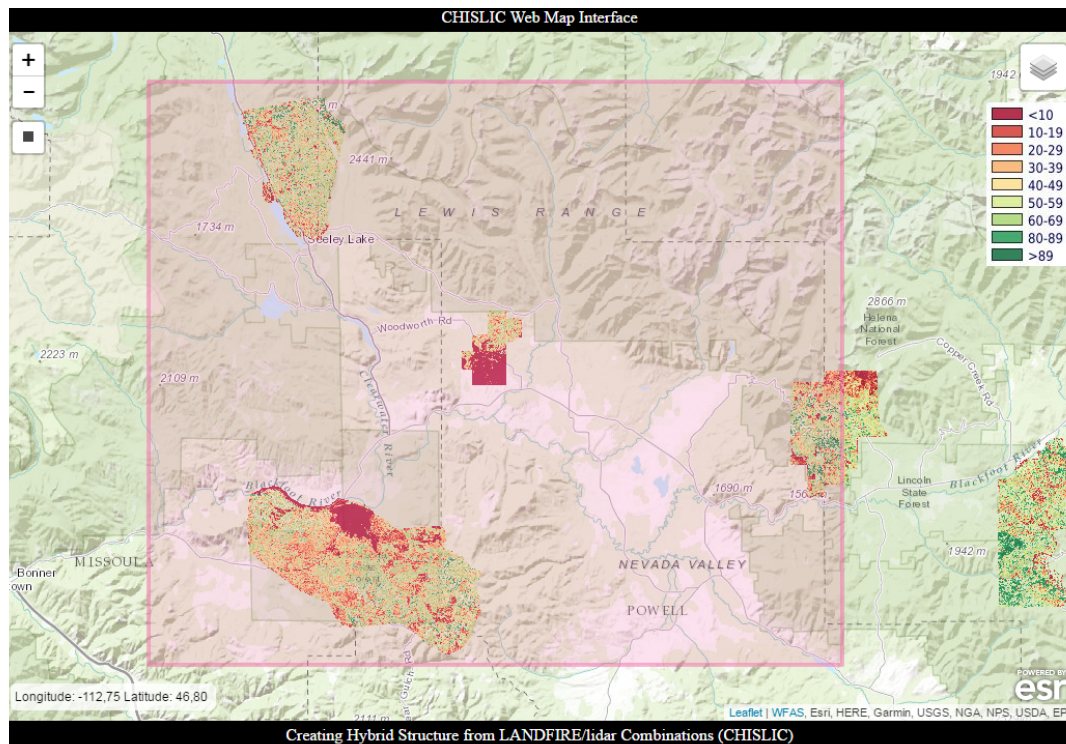
	Low	Mod	High	V High	Severe
2	4	6	8	10	
4	8	12	16	20	
6	12	18	24	30	
8	16	24	32	40	
10	20	30	40	50	

Simple and actionable

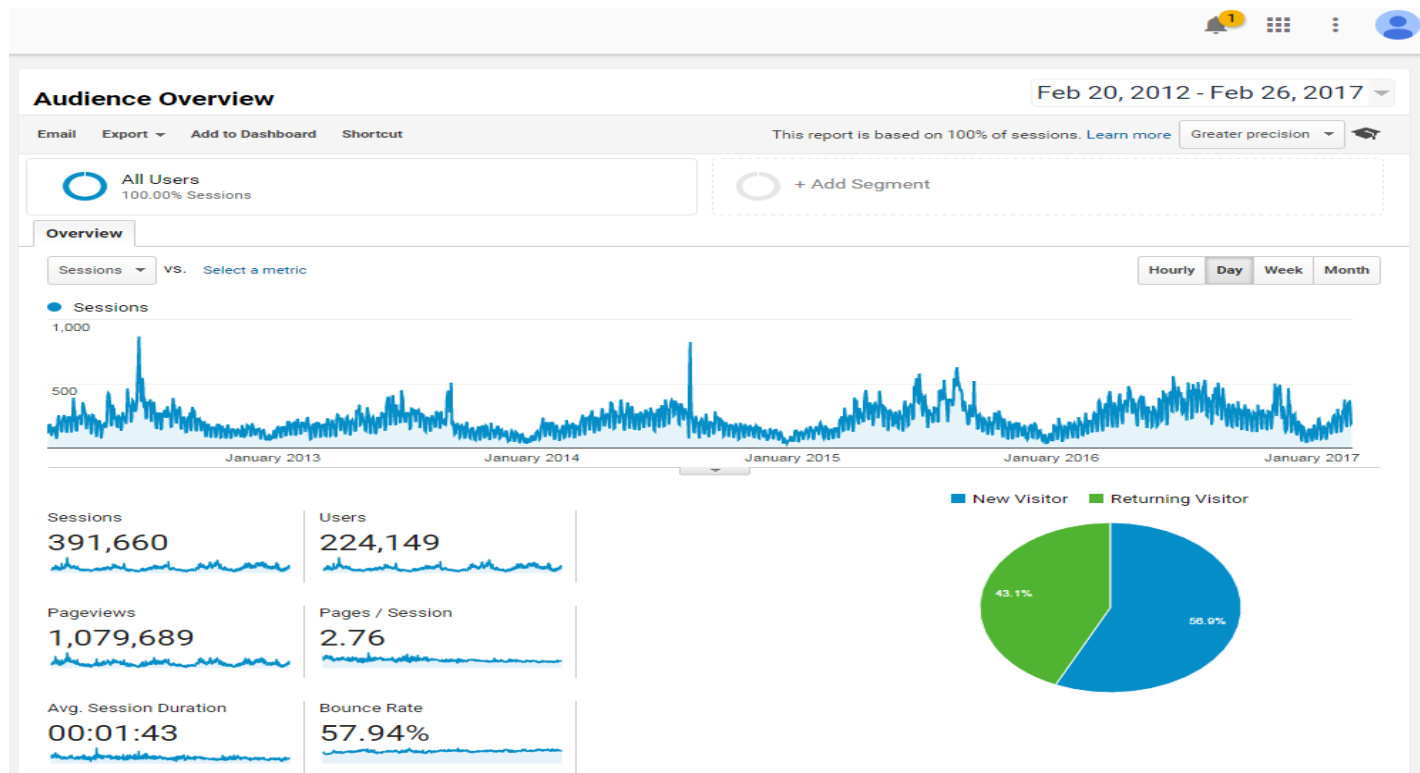
New tools for fire managers



<http://www.wfas.net/maps/chislic/>



Google Analytics



How do we reach managers?

- Make data **accessible** on WFAS
- Data descriptions, use and interpretation built into standard firefighter training
 - Geospatial Fire Analysis (S-495)
 - Intermediate fire danger rating (S-491) and Advanced NFDRS
- Assist with fire danger operating plan development:
 - Staffing, preparedness and response plans
- Link decision support products to time and space scales of actual decisions
- More opportunities to expand EOS data training in appropriate fire training courses

Barriers to adopt EO-based products

- Latency (depending on application)
- Minimal remote sensing training
- Datasets are often not 'accessible' to a variety of users
 - Complicated SD formats
- Concerns over long-term availability
- "Learning Lag"

Want WFAS to feature your projects?

- Give me a short abstract and any links
- Example screen captures or dataset images



Let's keep looking to the future. It takes a village.